

JPRS 75275

10 March 1980

# Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 34

**FBIS**

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NUCLEAR DEVELOPMENT AND PROLIFERATION  
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WORLDWIDE AFFAIRS

TINDEMANS DISCUSSES EURATOM FAILURE

European Nuclear Cooperation Doomed

Geneva JOURNAL DE GENEVE in French 25 Jan 80 p 3

[Text] Euratom is a failure. This pronouncement was carefully substantiated by Leo Tindemans, former Belgian prime minister and a fervent European, during a conference jointly sponsored by the Winston Churchill Swiss Foundation and the University of Geneva. Mr Tindemans dissected the causes for this failure one by one; sparing no one and least of all France in his criticism, he convinced even the skeptics who might have been present that Euratom was undermined from within and since the beginning. The clarity of his presentation inspired us to give the following recapitulation of his major arguments.

Briefly going back to the past, the former Belgian prime minister recalled that the Euratom agreement was signed in Rome on 25 March 1957 together with the treaty inaugurating the EEC, by France, Italy, FRG, Belgium, Luxembourg, and the Netherlands. Europe had been impelled toward unity by energy problems which were not very different from those we face today.

Mr Tindemans alluded to the immediate postwar period and to the awakening of political leaders during the harsh 1946-1947 winter which they saw as a blatant example of the energy shortage and a clear portent of the future. But since World War II, oil gradually replaced coal even though it was a relatively new source of energy, and this was due primarily to the initiative of private enterprise. Nevertheless, Mr Tindemans asserted that even at that time oil did not inspire confidence; Europe was conscious of its dependency on the Near East and the Suez Canal crisis reinforced this feeling.

Fear of Energy Shortage

A solution had to be found, especially since projections revealed a serious energy shortage in the not too distant future. According to Mr Tindemans, this pessimism was shared by the "three wise men", Messrs Armand, Giordani, and Etzel, in their report prepared in the early 1950's

which predicted a shortage amounting to the equivalent of 157 million tons of coal for 1975! The former prime minister asserted that the three men were also greatly mistaken when they evaluated oil importations for 1975 at a figure equivalent to 150 million tons of coal, whereas in reality, foreign purchases that year were equivalent to 626 million tons of coal.

Thus, for the three experts as well as for many politicians, the natural solution for European energy problems was to be found in nuclear power. Mr Tindemans explained that this is proven by the resolution adopted in 1955 in Messina by the ministers of foreign affairs of "The Six", wherein it was stated that "development of atomic energy for peaceful ends will shortly open the way for a new industrial revolution on a scale unknown to the revolution of the past 100 years."

The establishment of a competitive nuclear industry required European co-operation, and for Mr Tindemans this constraint was in keeping with the views of several political figures concerning Europe. Thus, after the failure of the Pleven Plan for a European Defense Community, greater attention was paid to Robert Schuman's plan, namely the CECA, and in his goal which was to build Europe stone by stone on the basis of tangible achievements.

Formed to save Europe from a minority status in the world's economic development, Euratom came into being in 1957. But even at that time, Mr Tindemans feels that it did not receive a favorable consensus. England had left Euratom the previous year, fearing the loss of its monopoly in matters of nuclear experience in Europe, as well as the loss of its privileged access to Canada's uranium reserves, which might prevent it from developing its own nuclear force.

#### French Opportunism

As for France, Mr Tindemans clearly let it be understood that it had been opportunistic from the beginning in favoring the establishment of Euratom. The French government did not think it would be able to singlehandedly bear the expenses necessary to develop a nuclear industry. Therefore it hoped to compensate for its late start by taking advantage of the dissemination of knowledge acquired by the other member nations, as well as the access to fissionable materials. Mr Tindemans added, not without irony, that France was also rallying to the cause of nuclear weapon nonproliferation, which did not prevent it from detonating its own atom bomb in 1960!

The former prime minister of Belgium noted that Euratom, already in jeopardy, thereupon entered into gradual decline.

## Reasons for Failure

Geneva JOURNAL DE GENEVE in French 26/27 Jan 80 p 7

[Text] Euratom was formed in March 1957 at the same time as the EEC, but unlike the latter, it has had difficulties from the very beginning. Leo Tindemans analysed its gradual decline during a conference held jointly in Geneva by the Winston Churchill Swiss Foundation and the University of Geneva, where he presented an analysis entitled "The Failure of Euratom", whose highlights are being reported here (see our issue of 25 January).

Mr Tindemans reviewed Euratom's major functions and assessed the degree to which they were fulfilled. His conclusions were not very encouraging. He recalled that articles 1 to 3 of the treaty specify that Euratom is a community organization designed to raise the European standard of living by stimulating industrial development. To this end, one of the powers given Euratom was to establish a European nuclear industry; to organize, finance, and coordinate research; and to disseminate knowledge and information.

The organization was also charged with organizing a common market for nuclear energy; it had a monopoly over transactions involving fissionable materials; and it had the task of establishing pilot programs, so as to offer guarantees to industrialists who wished to invest in the nuclear sector, and in order to coordinate those investments.

### Lack of Interest from the Start

But the former prime minister noted that the member nations were never very interested, as shown by financial participation figures. From 1958 to 1962, 7.5 billion FB (about 450 million FS) were made available for research and development; this amount doubled for the 1963-1977 period. Mr Tindemans asserted that the Euratom budget represents one fifth of one percent of all resources devoted to the nuclear sector throughout the EEC. France and England, deeming this percentage still excessive, wanted in any case to close down the existing research facilities.

These centers, which numbered only four, did not succeed in building a European reactor. By contrast, each member nation now has its own, partly built under American license.

As for enriched fissionable materials, only France and England have such an industry, and on a modest scale at that! Mr Tindemans also questioned the dissemination of knowledge. There has been almost no exchange of information resulting from national programs, France invoking national security among other reasons. In these various areas, Euratom is therefore a failure.

On the other hand, Mr Tindemans conceded that the treaty has made it possible to set safety and health protection guidelines for nuclear

activities. The Euratom commission has also supervised the peaceful uses of fissionable materials. Similarly, tariff obstacles have been eliminated within the Community, thus making it possible to establish a genuine common market for nuclear materials, with one exception, as Mr Tindemans emphasized: in April 1975, a nonbinding agreement was reached between France, England, FRG, the United States, USSR, and Japan, designed to place the exportation of nuclear items under strict conditions.

#### Agency's Supply Authority Eroded

The former prime minister further remarked that one of Euratom's shaky elements is the European Supply Agency, whose essential task, theoretically at least, was to centralize the sale and purchase of fissionable materials. It was a monopoly which should have allowed the agency to control safety guidelines and the equitable distribution of uranium among member nations in case of shortage. Yet, Mr Tindemans confessed that Euratom has failed to reach the goals assigned to it in this area as well.

This is because there has not yet been a shortage. As a result, the agency's powers have been eroded little by little, through procedural changes. It has notably lost its monopoly over the sale and purchase of uranium and would only recover it in case of a serious shortage.

Mr Tindemans asserted that France is not displeased with this situation, since it wants to limit the agency's role as much as possible. In fact, on several occasions, it has violated the treaty by failing to inform the agency about uranium purchase agreements with Canada and Australia. The French government has also proposed delegating major authority in matters of uranium sales and purchases to industrial operators.

To illustrate his views, Mr Tindemans cited a statement by Michel Debre, which he felt summed up the French position in an unflattering way: Mr Debre, an ardent defender of the government, is alleged to have said that "fissionable material cannot be handled like potatoes." France, continuing its effort to dismantle Euratom and in particular its supply agency, succeeded last September in bringing about a discussion among "The Nine" over the possible reorganization of Euratom. This news led Mr Tindemans to deplore the member nations' attack on the supply agency just at the time when doubt is arising about the stability of the fissionable materials market.

#### Lack of European Nuclear Industry

As for the European nuclear industry, Mr Tindemans remarked that it does not exist. The "three wise men" had expected that the EEC would produce 15,000 megawatts of nuclear energy in 1967. But only 10 percent of the plants which were to provide this power have been built, and none of them is competing with conventional energy sources. The optimism of the three men was later reflected in the only two pilot programs established by the

Euratom Commission, and published in 1966 and 1974. According to Mr Tindemans, the unrealistic figures contained in these publications did not help win the confidence of industrialists.

After the 1973 oil crisis, for example, the published report indicated that nuclear energy was the only kind which could replace oil. It therefore proposed to multiply nuclear energy production capacity by fourteen, to reach 220 gigawatts by 1985. But in 1976 the Commission noted that production on that date would be less than 100 gigawatts! The reason for this was a slowing down of the demand for electricity, and the growing opposition to nuclear energy.

#### A Missed Opportunity

In the last analysis, according to Mr Tindemans, Europe's economic renewal received its impetus from oil and private initiative rather than from nuclear energy. Furthermore, he added, by overestimating nuclear power and underestimating oil, the Commission missed an excellent opportunity to achieve European cooperation in a sector which was still under-developed at that time.

In conclusion, Mr Tindemans felt that the principal cause for the failure of Euratom was not the absence of a nuclear market, but rather the concession implied in Euratom, namely, the relinquishing of certain national prerogatives.

This was too much for some member nations, whose nationalist reflexes prevailed. Since cooperation was no longer evident, Euratom became an easy target for those who were hostile to supranational authority.

Finally, and without taking a position for or against nuclear power, Mr Tindemans urged that the member nations unite to find a solution and prevent the energy crisis which he feels is bound to arise in the not too distant future. Because Euratom's responsibilities have been gradually undermined, he feels that this organization could not fulfill its functions in case of a uranium shortage. On this subject, he felt that France's attitude with respect to the supply agency was a step in the wrong direction. Mr Tindemans -- who is also a member of the European Parliament -- concluded that on the contrary, the EEC and the member nations must take care that modifications to the treaty do not reduce Euratom's power, but must act in such a way as to expand them.

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WORLDWIDE AFFAIRS

BRIEFS

ARGENTINA-ROK NUCLEAR AGREEMENT--Buenos Aires, 11 Feb (NA)--The National Atomic Energy Commission (CNEA) signed an agreement today with the Korea Electric Company, a South Korean company in charge of that country's development of nuclear electricity. The agreement establishes scientific and technological cooperation in the field of nuclear electrical energy between the two institutions. The document was signed by Vice Adm Carlos Castro Madero, head of the CNEA, and Sung Chang Kin, vice president of the Korea Electric Company. [Text] [PY120205 Buenos Aires NOTICIAS ARGENTINAS in Spanish 0012 GMT 12 Feb 80 PY]

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JAPAN

BRIEFS

FUKUSHIMA ATOMIC POWER STATION SUSPENDS OPERATION--Tokyo Electric Power Co. suspended the operation of the No. 4 plant of its Fukushima atomic power station in Fukushima Prefecture Sunday morning, the company said. The plant, of the boiling-water type, with a generating capacity of 784,000 kilowatts, was suspended after it was found that there was a leakage of water in their air conditioning equipment within the reactor containment structure. The company said the cause of the accident was now under investigation. It said there was no fear of radioactive contamination outside the structure. [Text] [OW100827 Tokyo KYODO in English 0723 GMT 10 Feb 80 OW]

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**TAIWAN**

**ECONOMIC OFFICIAL: ENERGY SUPPLIES SECURED FOR 1980**

OW091425 Taipei CNA in English 1330 GMT 9 Feb 80 OW

[Text] Taipei, Feb 9 (CNA)--Energy supplies for the year, including some 22 million kiloliters of imported crude and fuel oil, have already been secured, a senior economic official said. He noted that based on current prices, the imported petroleum will cost as much as US\$4.6 billion, which will account for 25 percent of the nation's total export value for this year. In addition to 3 million tons of coal to be produced domestically, between 2.5 million and 3 million tons will be imported, Chang said.

The nation's demand for energy grew 8.8 percent to 30 million kiloliters of oil equivalent last year. Industrial consumption accounted for 54 percent, and other sectors 18 percent, and industrial raw material use 14 percent.

Profiling the nation's energy supplies under the 10-year economic development plan, the official said that use of coal and nuclear power will be increased to reduce the nation's dependence on imported oil. By 1989, coal will supply 28 percent of the nation's overall energy needs, nuclear energy 14 percent, and oil 49 percent (compared to 73 percent currently).

By 1991, nuclear energy will account for 37 percent of total electricity production, coal 34 percent, oil 15 percent, liquefied natural gas 9 percent, and hydroelectric power 5 percent. He also noted that domestic energy prices will be kept at a "reasonable" level, reflecting actual energy costs. He said a return to the previous low energy prices would hinder development of the energy industry.

In addition, he said, the government will institute energy management regulations, which will include requiring manufacturers to set up energy supervisory systems and energy conservation plans, setting insulation standards for the construction industry, regulating emergency inventories for large consumers, improving mass transit systems, implementing daylight savings time, and increasing energy efficient products.

To promote energy research and development, the government-run Chinese Petroleum Corp. and Taiwan Power Co. will each set aside 1 percent of its revenues for use in energy research. Half of the fund will be used to start an energy institute, and the remaining half will be used for energy conservation technology for energy-consuming industries such as paper, cement, steel, aluminum refining, and alkali.

CSO: 5100

TAIWAN

BRIEFS

NUCLEAR PLANT SAVINGS--Taipei, Jan 26--The nuclear power plant No is is saving U.S. \$800 million a year in oil bills, David S.L. Chu (2579 7792 2512), president of Taiwan Power Co., said in Chinshan, northwest of Keelung. Nuclear power is the cheapest after hydro power, Chu said. It costs only NT dollar 0.46 to generate one kwh of power on nuclear fuel, while one kwh of power by fuel oil will cost NT dollar 1.07 or more than double nuclear fuel. The nuclear power plant No. 1 has two 636,000 kw generators, or a combined capacity of 1,272,000 kw. The first unit began generating power in November 1977, while the second one joined in August 1979; the two units are saving NT dollar 800 million (U.S. \$22.2 million) in oil bills, Chu said. The saving is calculated on old oil prices, he added. Cost of generating one kwh of power is, according to Chu, NT dollars 0.3433 (U.S. \$0.0095) by hydro power; NT dollar 0.4582 (U.S. \$0.012) on nuclear fuel; NT dollar 0.8884 (U.S. \$0.024) on coal; NT dollar 1.0708 (U.S. \$0.047 on crude oil; NT dollar 1.8761 (U.S. \$0.052) on diesel oil; and NT dollar 3.1686 (U.S. \$0.098) on turbine. [Text] [Taipei CNA in English 0941 GMT 27 Jan 80 OW]

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CZECHOSLOVAKIA

**BRIEFS**

**ENERGY RESOURCES--**At his Bratislava press conference on 30 January, J. Kuran, director of the Slovak Geological Office, stated that last year Slovak geologists concentrated on the research of new brown coal deposits in Zahorie, and on the deposits of crude oil and natural gas in Eastern Slovakia, namely in Hanusovce and Lipany. In the coming years geologists will aim at preparing localities for nuclear power stations, among other things. [Text] [Bratislava SMENA in Slovak 31 Jan 80 p 5 AU]

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INTER-AMERICAN AFFAIRS

BRIEFS

FORMATION OF NUCLEAR BLOC--Carlos Castro Madero, president of the Argentine National Atomic Energy Commission, stated yesterday in Buenos Aires that the cooperation agreement which will be signed during President Figueiredo's visit in May will allow the formation of a Latin American bloc to support the right of the region to have access to nuclear technology. Madero also stated that the agreement will show that there does not exist a "dangerous rivalry" between the two main powers in Latin America, as argued by some industrialized nations which present as an example the problems existing between India and Pakistan. [Text] [PY131221 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 12 Feb 80 p 1 PY]

BRAZIL-CHILE AGREEMENTS POSSIBLE--Rio de Janeiro--The following agreements may be signed during President Figueredo's visit to Chile: a Brazilian-Chilean nuclear cooperation agreement and an agreement allowing the Brazilian Petroleum Corporation to prospect for petroleum under risk contracts on the southern Chilean continental shelf. These possibilities were discussed at a preparatory meeting for Figueredo's visit held by Foreign Minister Ramiro Saraiva Guerreiro with Chilean Ambassador Fernando Zegers. [Text] [PY132337 Porto Alegre Radio Guaiba in Portuguese 2150 GMT 13 Feb 80 PY]

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BRAZIL

BRILUS

CONSTRUCTION OF PLANTS CRITICIZED--Presidente Prudente--Senator Franco Montoro has charged Sao Paulo Governor Paulo Salim Maluf with forcing the 10 million inhabitants of greater Sao Paulo to face the threat of a nuclear disaster as a result of the construction of two nuclear plants only 100 km away from the state capital. Senator Montoro said that he will protest to the National Energy Commission, the Mines and Energy Ministry and the Brazilian Petroleum Corporation. In his opinion, this situation becomes far more serious if one considers that Brazil does not need nuclear energy to generate electricity. [Text] [PY120054 Porto Alegre Radio Guaiba in Portuguese 2150 GMT 11 Feb 80 PY]

BUDGET CURTAILS NUCLEAR PROGRAM--Brasilia--Paulo Nogueira Batista, president of the Brazilian Nuclear Corporation [NUCLEBRAS], today told Mines and Energy Minister Cesar Cals that it will not be possible to continue with the implementation of the Brazilian nuclear program. He was specifically referring to the installation of the fuel cycle which, in his opinion, cannot be implemented within the budget earmarked for NUCLEBRAS this year, that is, slightly over 19 billion cruzeiros. He made this announcement after a 3-hour meeting with Minister Cals in Brasilia. Mines and Energy Ministry sources have reported that Minister Cals no longer assigns priority to the installation of the nuclear fuel cycle in the country, as he did until last year. [Text] [PY121150 Porto Alegre Radio Guaiba in Portuguese 0200 GMT 12 Feb 80 PY]

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SAUDI ARABIA

BRIEFS

NUCLEAR REACTOR--Riyadh--The Petroleum and Minerals University in the eastern district continues its nuclear research in preparation for starting work on the establishment of a new nuclear reactor. Dr Bakr 'Abdallah Bakr, dean of the university, in a statement published today in AR-RIYAD, said that the reactor, which would be the kingdom's first, would serve peaceful purposes, such as water desalination and, in the long-term, electric power generation, especially when oil supplies had been depleted. He said that the university would extract the minerals and materials needed for the reactor from regions in the kingdom where such deposits existed, adding that it was the university's plan to create specialized Saudi cadre and benefit from the scientific expertise of states which had experience in this field. He said that next Thursday he would pay a 10-day visit to India to discuss the possibility of seeking help from Indian experts and technicians at the Scientific Research Institute. He would pay a similar visit to West Germany. [Text] [Riyadh SNA in Arabic 0623 GMT 9 Feb 80 LD]

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SOUTH AFRICA

**PARLIAMENT QUESTIONS ON PROLIFERATION, NUCLEAR WASTE**

**Botha on Proliferation Treaty**

Johannesburg THE CITIZEN in English 14 Feb 80 p 12

[Text] No decision had yet been taken in regard to the signing of the nuclear nonproliferation treaty, the Minister of Foreign Affairs, Mr Pik Botha, said.

Replying to a question by Mr Nigel Wood (NRP Berea), Mr Botha said the matter was still under consideration.

Mr Wood, in a supplementary question, asked whether, in order to stop rumours, it would not be in the country's interests to sign the treaty.

Replying, Mr Botha said: "We cannot for the sake of stopping rumours act against South Africa's interests."

**Nuclear Waste Disposal**

Johannesburg THE CITIZEN in English 14 Feb 80 p 12

[Text] The Atomic Energy Board, in collaboration with the Electricity Supply Commission (Escom), was investigating the storage of radioactive waste, the Minister of Mines, Mr F W de Klerk, said yesterday.

Replying to a question by Mr I F A de Villiers (PFP, Constantia), Mr De Klerk said no decisions had, as yet, been taken on this matter.

CSO: 5100

## GREATER DEVELOPMENT OF NUCLEAR POWER PROPOSED

Moscow MEZHDunarodnaya zhizn' in Russian No 1, Jan 80 pp 96-101

[Article by V. Yemel'yanov, corresponding member of the USSR Academy of Sciences: "The Energy of the Atom in the Service of Peace and Progress"]

[Text] In recent years the words "power" and "power production" have been a constant theme of participants at numerous national and international conferences, meetings and symposiums, and have been continuously found on the pages of newspapers and magazines. "When Will the World Energy Crisis Break Out?", "Americans Are Thirsting for Oil," and "The Approaching Catastrophe"--these alarming titles can often be seen on the pages of the Western press. This concern is completely understandable. At present the energy crisis is the number one problem of the capitalist economy.

Let us recall that the very development of civilization has been directly related to an increase in the consumption of energy and a transition from one source of energy to another, that is, from wood to coal, from coal to oil and natural gas. At present, the per capita consumption of energy shows most accurately and objectively the development level of countries and peoples. Consumption of energy is rising rapidly with each decade. This growth means increased use of the primary fuel sources such as oil, gas and coal. The reserves of oil and gas, according to the estimate of specialists, can be depleted before the end of the century. As for coal, although its reserves are sufficient for meeting needs for many decades and even centuries, for a whole number of reasons (among which the most important are economic and ecological) it is not possible to use it widely.

In our days mankind has reached a new turning point in his development. By the end of the current century, the main source of energy will be a fundamentally new one based not upon the use of chemical processes (the combustion of organic fuel), as was the case over the entire previous history of mankind, but rather on nuclear processes. Mankind has already entered this new period of development. Man is already using energy from the fission of heavy nuclei, and intensive research is underway to control the processes of the fusion of light nuclei. At present there are over 180 nuclear power plants in operation in the world, and new ones are going

on stream each year. Nuclear power is of enormous significance for the development of mankind, and this presently cannot be denied.

In recent years, a whole series of international forums has been devoted to the questions of energy. The broad international community is taking an active part in the discussion of these questions. Energy problems for a number of years have been discussed at the Pugwash conferences. Even at the first Pugwash symposium held in London, in April 1968, a series of papers was given devoted to the development of nuclear power, to the systems of controlling the use of atomic energy, and to comparing the economics of nuclear and organic fuel.

Even a decade ago, a majority of scientists in the world optimistically viewed the development prospects of nuclear power. It was forecast that by the end of the present century, up to 30-40 and even 50 percent of the energy in the industrially developed countries would be produced at nuclear power plants. However, recently in a number of nations, and primarily the United States, pessimistic notes have been more and more often sounded and the advisability of developing nuclear power is disputed. The legitimate fears related to the difficulties of the development of the new sector are artificially being inflated by the opponents of the peaceful use of nuclear processes. An acute debate has developed over the issue of the possibilities of utilizing nuclear power.

In line with the campaign in a number of countries against the construction of nuclear power plants, 32 of the most prominent U.S. scientists, a third of whom are Nobel Prize winners, in March 1975 published a memorandum under the title "There is No Alternative to Nuclear Power." The scientists did not deny that there were still unknown difficulties on the path of utilizing nuclear power, but they in no way considered these difficulties insuperable. Their conclusions were cautious but completely clear. They see the way out of the energy impasse only by developing nuclear power.

The debate which has developed in the West over the problem of nuclear power involves the interests of all nations, both those already having nuclear power plants and also those planning to create them in the future. In this regard it is important to establish what fears of the opponents of nuclear energy have solid grounds under them and what has been caused by a desire to compromise the new source of energy at whatever the cost.

It is essential to consider the direction in which psychological factors are operating. It must not be forgotten that people in practical terms became acquainted with nuclear power under tragic circumstances which in many evoked a panic fear of this new energy source. The new energy was presented to the world in the explosions of atomic bombs and as a weapon of terrible destruction. Thus, the new source of energy gave rise not to the joy of hope, but rather a feeling of fear and disappointment. For many years nuclear power in the minds of people was linked to its use for military purposes. These ideas which arose almost 35 years ago have persisted

in many up to now, although more than a quarter of a century has passed since the first nuclear power plant went on stream. The successes of nuclear power and the increase in the number and capacity of the nuclear power plants substantiate the advisability and promise of using the energy of nuclear processes, but doubts and fears still persist in many and the information media artificially fan these fears.

Just what circles are interested in compromising the peaceful use of nuclear power? These are above all the monopolistic groups involved with the use of organic fuel, and above all the oil monopolies. Having gained control over organic fuel, and above all oil, these monopolies are earning fabulous profits. Precisely these circles are interested in causing mistrust of the new powerful competitor in the energy area, and impeding the energy use of nuclear processes or, at least, limit its scale.

What arguments have been advanced by the opponents of building nuclear power plants?

In their mind, the very presence of a nuclear power plant in one or another area represents a danger not only for those who work at such a plant, but also for the population of adjacent regions, and threatens the environment with radioactive contamination. Any, even the slightest failures at nuclear power plants are depicted by the Western press as a catastrophe, and an atmosphere of suspicion and fear is fostered. In 1979, there was extensive publicity of the emergency at the American nuclear power plant in Harrisburg [Three-Mile Island]. From these announcements it was difficult to understand precisely what actually had occurred there. Academician A. P. Aleksandrov, president of the USSR Academy of Sciences, wrote thus about this emergency: "The depiction in the Western press of the failure of the nuclear reactor at Harrisburg, when in essence minor unpleasant consequences were described in an extremely exaggerated form, is a continuation of the campaign against nuclear power.... This is a reflection of the line carried out by the oil monopolies who fear that competition from nuclear power plants will lead to a decline in their income."

Undoubtedly, the development of nuclear power raises the urgent question of preventing the polluting of the environment with radioactive materials. The concern of the world community with this problem is understandable. At the same time, the 25 years of operating nuclear power plants in the Soviet Union, the first nation in the world which put the atom in the service of mankind, as well as in other countries, show that it is completely possible in technical terms to develop safe conditions at these plants.

It is essential to note that the number of accidents at these plants is less than in other sectors of modern industry. And an analysis of these accidents has convincingly shown that their reason lies not in the specific features of the nuclear processes, but rather in violations of the safety equipment or the operating and control rules. The taking of the proper safety measures provides an opportunity for the safe development of nuclear power.

However, in the capitalist world safety and the well being of the population, the protection of the environment and production safety equipment can be sacrificed on the altar of superprofits. This is no longer a technical but rather a social problem. The American specialist Edwin A. Widgin has stated: "It must be directly said that a majority of the problems (related to the use of nuclear power.—V. Ye.) require social and political and not technical solutions. Certain of them are not so real as they are imaginary. But real or imaginary, social or technical, new or old, they do exist. and until they are resolved, the enormous possibilities of nuclear power cannot be realized."<sup>1</sup>

As an argument against building nuclear power plants, the opponents of nuclear power have also given the following reason: in any reactor of a nuclear power plant there is a process of the accumulation of plutonium which can be used not only as a nuclear fuel but also as a nuclear explosive which could be employed for producing nuclear weapons. For this purpose it has been proposed that the development of nuclear power be restricted to the use of uranium.

In developing this proposal, the idea has been raised of creating "plutonium-free zones" in the regions where nuclear power plants are already in operation or are planned for construction. Its supporters have proposed giving up the construction of chemical plants to process the uranium which has been used in the reactors and the extraction of plutonium from it, while the used fuel elements be sent directly from the power plants to special storage areas, in essence, for "eternal" storage.

However, without the use of the plutonium nuclear power cannot gain significant development as there is not a sufficient quantity of nuclear fuel for this. Natural uranium contains just 0.7 percent of the fissionable uranium 235. And out of this quantity, not more than 0.5 percent in practical terms can be "burned up." The resources of the more or less inexpensive uranium suitable for power purposes can be exhausted within the next 20-30 years. The supporters of this view also do not consider that at present scientific and technical information on the properties and production methods of plutonium is quite adequate for many countries to organize its production independently. If any of the nonnuclear nations desires to develop nuclear weapons, it can do this regardless of whether it has nuclear power plants or not. This is substantiated by the experience of India which independently organized plutonium production for conducting a peaceful nuclear explosion. The design of the reactor for plutonium production is much simpler than the design of a reactor used for a nuclear power plant which should provide reliable extended operation and the obtaining of relatively inexpensive electric power. In recent years, more and more often fears have been voiced that plutonium could be stolen by criminal elements for manufacturing a primitive nuclear weapon.

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<sup>1</sup> INTERNATIONAL ATOMIC ENERGY AGENCY, Doc. CN-36/396, p 3.

Undoubtedly the development of nuclear power involves a serious risk of using the elements from the process of generating nuclear power for creating atomic weapons. In this regard great significance is assumed by control over the nuclear activities of states and the strengthening and improving of conditions for the nonproliferation of nuclear weapons. The International Atomic Energy Agency (IAEA) which has operated under UN aegis for more than 20 years has worked out an effective and reliable control system. The Soviet Union has worked constantly so that control be aimed at preventing the possibility of using atomic energy against mankind and not at impeding progress in the area of the peaceful use of the atom.

In recent years the Soviet Union has come forward with a whole series of initiatives aimed at strengthening conditions for the nonproliferation of nuclear weapons, including the proposal made at the 33d UN General Assembly Session for the concluding of an international convention on strengthening the guarantees for the security of nonnuclear powers and a proposal not to place nuclear weapons on the territories of states where they are not presently found. In his speech in Berlin on 6 October 1979, L. I. Brezhnev reaffirmed that the Soviet Union would never employ nuclear weapons against those states which refuse to produce and purchase such weapons and do not have them on their territory. Detente can become a factor contributing to the nonproliferation of nuclear weapons. However, the further proliferation of nuclear weapons can be fully halted only by their banning, by the complete halting of testing and the destruction of all nuclear stockpiles.

There is a significant group of scientists who see in nuclear power only danger and the agent of new calamities and misfortunes. In recognizing that organic fuel cannot meet the growing needs of mankind for energy, they consider it essential to develop any other energy sources except nuclear ones.

A portion of them counts on the use of solar energy which, in their opinion, over the next decades can play a substantial role in meeting energy requirements. Others propose focusing efforts on the use of geothermal energy and accelerating the drilling of wells to a depth of more than 10 km for using the heat from the inner layers of the earth. Still others, without showing preference to any one source, consider it necessary to work on a broad front, in employing all types of alternative energy sources including the energy of the wind and tides.

However life shows that the growing energy needs of mankind can be fully covered only by the use of energy from nuclear processes. In speaking at the 21th Session of the General IAEA Conference, the director general of this organization pointed out that "in spite of certain opposite viewpoints it is apparent that nuclear energy is the only new source of energy which is available for immediate use."<sup>2</sup>

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<sup>2</sup>BULLETIN OF THE IAEA, No 6, December 1977, p 14.

As was rightly pointed out in one of the reports submitted at an international conference on nuclear power and its fuel cycle held in May 1977 in Salzburg, the "Pandora's box cannot be closed. We cannot live as if nuclear power had not been discovered. This is one of the ingredients of our technical age. The participants in the campaign against its development and use must consider this fact."<sup>3</sup> In the report at the conference given by a group of Soviet scientists headed by Academician A. P. Aleksandrov, it was stated that "a rise in the nuclear power industry is inevitable for a majority of the nations, regardless of all the fears."<sup>4</sup>

There are many unresolved problems in nuclear power. One of the most important and complicated is the problem of radioactive wastes. The future of atomic power requires a method for resolving this problem which is dependable and at the same time not too complicated or expensive.

The problem of radioactive wastes has attracted the attention of not only specialists, but also broad groups of the public even in the 1950's, when atomic reactors appeared for producing plutonium and the first nuclear power plants. The United States and England during those years disposed of all the radioactive wastes of their plutonium plants in the seas and oceans. In France radioactive wastes from atomic enterprises were even released into the Seine.

Radioactive solutions released in the sea escape from under human control, and the sea currents carry them far from the dumping sites. At one time it was felt that the radioactive solutions would be so diluted by seawater that they did not represent any danger for man. However, numerous research has shown the absorption and accumulation of radioactive substances by the flora and fauna of the sea.

Along a biological chain, in some instances short and in others longer, the radioactive substances are taken up in the marine organisms which serve as human food.

The most prominent scientists of the world are against the discharging and burying of radioactive wastes in the seas and oceans. It has been proven that the burying of radioactive wastes at a great depth in special metal containers or in cement and ceramic blocks does not exclude the danger of radioactive contamination. The hermetic packing impedes the release of radiation only for a certain limited time. The research conducted in recent years has repudiated the previously encountered notions that the vertical displacement of water in the seas and oceans occurs very slowly and that there are regions where the process of the mixing of abyssal waters with surface waters occur over the millennia. Instead of the

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<sup>3</sup> INTERNATIONAL ATOMIC ENERGY AGENCY, Doc. CN-36/383, p 11.

<sup>4</sup> INTERNATIONAL ATOMIC ENERGY AGENCY, Doc. CN-36/337, p 3.

complete immobility at great depths, numerous strong currents have been detected. For this reason scientists have concluded that a most decisive struggle against radioactive pollution of ocean and seawaters is required.

The Soviet Union does not discharge radioactive wastes into the seas and oceans. The USSR has developed methods for deactivating radioactive wastes and for their safe storage. Over the many years since the question of radioactive wastes has arisen, the Soviet Union has been unwaveringly against the polluting of the seas, and has insisted on stopping the discharge of radioactive wastes into the seas and oceans.

As nuclear power has developed, the problem of radioactive wastes has assumed ever greater acuteness. How can these be stored and where? On land or at sea, in a liquid or solid form? For answering these questions, numerous research must be carried out on reducing the volume of the obtained radioactive wastes, on separating the long-lived ones from the short-lived, the consolidating of them by manufacturing glass, concrete or ceramic blocks, or the turning of them into a solid state in some way or other. The questions of the storage lives have also arisen. As is known, certain of the radioactive fragments in the solutions maintain radioactivity for thousands of years.

An important way for the development of power in the future is the obtaining of nuclear energy not by the splitting of the nuclei of heavy elements (uranium or plutonium), but rather by fusing light nuclei.

In the production of nuclear weapons, both nuclear processes (the splitting of the heavy nuclei and the fusion of light ones) are used. But in thermonuclear weapons uncontrollable nuclear processes occur, and here the energy is released instantaneously, in fractions of a second. In power production this is unacceptable, and here it can be a question only of controllable energy releasing processes. Humans have mastered the control of the processes of nuclear fission, and high-powered nuclear power plants have been operating for a long time. At present in a number of nations research is being carried out on a controllable nuclear fusion, but as yet this has not gone beyond the laboratory walls, although recently significant advances have been made in this area. Man is coming closer to mastering the controllable thermonuclear reaction which will bring him an inexhaustible source of energy. In the processes of nuclear synthesis, no fission products are formed, and thus the problem of radioactive wastes is eliminated. However, many other difficult problems arise.

How much time is required for completing the work on controlled nuclear fusion? Some specialists have asserted that the problem will be solved by the end of the present century, while others put off its solution to a more distant time.

Over this time how much radioactive waste will accumulate? The questions of the future of nuclear power were the subject of a review of the International Council of Scientific Unions [ICSU].

In May 1978, the first session of the ICSU Preparatory Committee for the Problem of Radioactive Wastes met in Paris. The further development of power production will be largely determined by the solution to the problem of nuclear wastes. Recently great experience has been gained in the concentrating and storage of nuclear wastes, and there is no doubt that this problem has a reliable engineering solution.

What measures must be taken to open up broad opportunities for the peaceful use of the atom? First of all it is essential to halt the nuclear arms race and begin real disarmament. The halting of the arms race and the destruction of nuclear weapons will create favorable conditions for broad international cooperation in the area of the peaceful use of atomic energy, and will make it possible to find the quickest and most rational solution to the problems arising over the use of energy from nuclear processes.

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10272

CSO: 1822

USSR

NUCLEAR POWER STATIONS USE, SYNTHETIC FUELS EXPANDED

LD141133 Moscow TASS in English 0849 GMT 14 Feb 80 LD

[Text] Moscow, February 14, TASS--The fuel-energy complex of the USSR will continue developing as a single entity, whose integral parts will harmoniously supplement each other. This is prompted by the requirements and possibilities of the socialist planned economy, Professor Sergey Yatrov told the TASS correspondent. He heads the Research Institute for Comprehensive Fuel-Energy Problems attached to the State Planning Committee of the USSR.

Professor Yatrov pointed out that the Soviet Union had the world's biggest fuel-energy complex which was developing at a fast rate. In the last 15 years alone, production of electricity and oil has been almost trebled and that of gas had gone up more than four-fold.

Up to recently, the fuel balance of the USSR was shaped, bearing in mind the increasing share of the most economical kind of fuel, above all, oil. As a result, the share of oil products in the overall structure of fuel production rose from 30.5 percent in 1960 to 45.7 percent in 1975. At the same time the share of coal declined logically. Unlike some Western countries, however, this process was not attended by a curtailment in coal production. On the contrary, in absolute figures it increased, first and foremost, by open-cast methods.

Nevertheless energy strategy cannot remain stable for a long period, Professor Yatrov emphasised. The prospects of development of the national economy of the USSR make it necessary to use more oil for technical requirements, replacing it by other fuels in the near future, at least down to 1990, the faster development of the gas industry and the replacement of mazut by gas acquire particular importance.

Notwithstanding expenditures, the further expansion of the production of cheap Siberian and Kazakhstan coal and its transportation to the European part of the USSR are also expedient, the scientist said.

Emphasis in the production of electricity will be on the rapid expansion of nuclear power engineering, the construction of atomic power plants not only for the generation of electricity, but also for heating systems. Long-term prospects envisage large-scale construction of atomic power plants with rapid neutron reactors, the development of work on control theory, nuclear synthesis, the manufacture of synthetic liquid fuel and the utilization of geothermal and solar energy, Professor Yatrov said.

CSO: 5100

#### NUCLEAR WASTE DISPOSAL CAUSES FINANCIAL PROBLEMS

Brussels SPECIAL in French 20 Dec 79 pp 44-45

[Text] Who would have said it, who would have believed it? It's a material as old as the world, used by an age-old technology to solve the most contemporary problem there is. It is good old glass which is going to serve to absorb nuclear power plant wastes.

The experiment began at Marcoule on a plain shared between the Rhone and Provence. From south of Lyon to within a stone's throw of Nimes, it is a site henceforth dedicated to nuclear power. It's between Phoenix, the baby of the French breeder reactors, and its elder, Super Phoenix, the nuclear flower of EDF [French Electric Company].

With cameo blue facades, red and white chimneys, Marcoule is everything that makes French industrial architecture hideous.

An installation which the engineers describe with chuckles of pride in their voices "It's better than The Hague." The Hague is the mammoth waste reprocessing center in Brittany, a waste supermarket whose clients are Japanese, German, or Belgian. Why is Marcoule better? "Because The Hague reprocesses and conditions the wastes into a form which makes their storage hazardous. Nothing is solved permanently there."

Nothing like that at Marcoule; it sets the example. The Marcoule facility, begun in 1974 and baptised AVM (Marcoule Vitrification Facility) in the jargon of the atomic professionals, cast its first glass in 1976. That was only a trial run without radioactive material. The first actual wastes arrived in June 1978.

#### A Stroke of Genius

Certainly, glass fusion has been known since the dawn of time. However, there is nothing in common with the industrial traditions. First, the work is conducted in a confined atmosphere; white aprons, Geigercounters, remote controlled manipulators, thick windows; all this to apply a simple principle to a very dangerous process. The first part of the operation is that the

wastes are dumped into a furnace which reduces them to an oxidized brownish powder, which is mixed with glass granules in a fusion vat. Thoroughly mixed for a full 8 hours, it is poured into a stainless steel hermetically sealed container. Each container is mechanically picked up by a gantry crane, which lowers it into one of the 240 holes dug next to the vitrification plant. At 10 containers per hole, there will be 2,400 when Marcoule reaches its full capacity. They're waiting there for permanent storage in French subsoil granite beds, which won't happen before another 10 years.

It's true that CEA [Atomic Energy Commission] engineers had their stroke of genius. Indeed, vitrification is not lacking attraction. The wastes are reduced in volume and stored in a form which makes them perfectly stable. The nuclear specialists' haunting fear, lixiviation (dissolution of the mass in water), is almost reduced to naught.

#### A Mental Aberration

Is it the absolute answer for everything? "That's to be seen," amends one of the Marcoule engineers. "We reprocess here only the fuel originating from 'gas-graphite' natural uranium installations; that is, everything which comes from the first generation power plants of French vintage, later abandons in favor of pressurized water reactors which use enriched uranium. It is true that the The Hague reprocessing center is studying a vitrification facility for pressurized water nuclear power plant wastes, which will not operate at an industrial level before at least 5 years.

Belgium has ordered almost a twin installation to Marcoule. The French AVM will become AVB, once installed at Dessel in central Kempenland. So vitrification it is, but the Belgian nuclear program authorities have been stung by the reprocessing bug, too. To support their thesis, the Belgian authorities are advancing a logic which appears to be a mental aberration. In operation, a power plant's reactor produces wastes, of which a large part is recoverable--in fuel form. Roughly, a ton of fuel rods leaving the core of the reactor contains 952 kg of uranium 238, 11 kg of uranium 235, 9 kg of plutonium 239, the "recoverables"--and 4 kg of transuranic elements and 24 kg of "ashes" without any value at present.

Lacking equipment, Belgium has signed three reprocessing contracts with COGEMA [French General Company of Nuclear Materials], established at The Hague and Marcoule, a subsidiary of the CEA. The first contract provides for the spent fuels discharged in 1976 from the first two sections of the Doel Power plant, 40 tons in all, which will be reprocessed in 1980. The second contract covers 98 tons discharged from Doel and Tihange between 1977 and 1979. The third, spread between 1980-1989 for all the operational Belgian power plants, will be for 398 tons. This will be a total of 540 tons reprocessed at The Hague.

#### Convincing the Reticent

Well, why not be satisfied with subcontracting the recycling of fuels to a country, which over and above its capabilities, possesses the technique? It's that France is very fastidious when it comes to signing contracts.

Although France did not create any difficulty at all with the first contract, signed with Belgium, it was otherwise for the second and even more so for the third. No question, this time, of setting the reprocessing date; it is noted that priority is given to French wastes. Moreover, The Hague will satisfy scarcely more than 40 percent of Belgian total reprocessing needs. All surplus reactor wastes must be stored on racks, which risk rapid saturation.

What to do? Two steps from the center of Mol, Belgium has a facility, Eurochemic, which was abandoned in 1974 by its European shareholders. There is where electrical engineers would like to reprocess what The Hague, operating at full capacity, could not handle. To convince the reticent, they put two numbers in the balance: the 1.2 billion francs it would cost the state to dismantle the present facility, and the 8.8 billion which must be invested to set up Eurochemic as a reprocessing center for the fuel from the pressurized water nuclear plants at Doel and Tihange.

#### A Leading Position

Presented just as it is, the balance sheet could overcome the reluctance of the hesitant. Alas! The numbers scarcely reflect reality. For the "vitrification" station, which must be built whatever happens, 600 million was estimated. Unrealistic, if one knows that a vitrification unit operating in the wake of a reprocessing unit will cost more than the same unit merely conditioning untreated wastes. In addition, the estimate fails to specify that it will be necessary to invest heavily in Belgonucleaire to qualify it to condition a plutonium-based fuel. Finally, the numbers presented go back to 1977. "It's almost 20 billion which must be discussed," maintains a nuclear specialist, fiercely opposed to any idea of reprocessing in Belgium, on the border of technology and the economy. Two arguments support his theses.

The scientific argument is first. Why should Belgium take a leading position in an area where the great hesitate or give up? It is when the United States has just interrupted civil waste reprocessing, the British are thinking it over, and the Germans have stopped. And as for France? There is nothing more logical, since the choice of the military striking force and breeder reactor both large users of plutonium.

The economic argument is next. "Reprocessing is favorable to our balance of payment," assert the electric engineers who emphasize the savings of some 70 tons of uranium which won't have to be imported any more. "250 million francs at best, which is small compared to the true cost of a complete recycling facility. For what has not been mentioned is that, in addition to the cost of reactivating Eurochemic, there is the construction of a plutonium fuel conditioning unit," responds the opposition. "At that price, we could sign a delivery contract with the Americans, even doubling the bid. Thus one would save the 20 billion for the real costs of the "reprocessing" operation, and one would avoid using a technique which no one has really mastered," insists this specialist.

And then, would reprocessing be profitable? That's to be seen. It is paradoxical to note that its most ardent defenders leave it to the state to take the financial risk for the operation.

What will Belgium do between now and 1985? Parliament will decide that in the course of its debate on nuclear policy. So it's up to the members to read the balance sheets between the lines.

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CSO: 5100

FRANCE

INDUSTRY MINISTER GIRAUD DETAILS ENERGY POLICY

LDI21417 Paris FRANCE-SOIR in French 6 Feb 80 pp 1, 4 LD

[Interview with French Minister of Industry Andre Giraud by Gabriel Farkas: "No Limit to Oil Blackmail"--date, place not specified]

[Excerpts] Develop Nuclear Energy

Gabriel Farkas: Will the recent changes on the oil scene lead the government to intensify its nuclear policy?

Andre Giraud: No, I do not believe so. Our program was devised with a view of the development of the oil situation which has unfortunately proved correct. It is advisable simply to continue this program resolutely and earnestly.

Gabriel Farkas: You recently said that the development of nuclear energy is the only way to avert an "oil war" in the future. What do you mean by that?

Andre Giraud: Unless there is a widespread and persistent economic recession, the amount of oil available will become increasingly limited. Current events in the Middle East give us a foretaste of the situation which could arise. Yes. The danger is real. So any policy which opposed the development of nuclear energy--that is, the replacement of oil--would be a dangerous policy for world peace.

CSO: 5100

FRANCE

NATIONWIDE PETITION PROPOSES NUCLEAR ENERGY MORATORIUM

Paris TRIBUNE SOCIALISTE HEBDO in French 3-12 Feb 80 p 1

[Text] In a previous issue of T.S. HEBDO we pointed out the ambiguous position of the PS (Socialist Party) toward the national petition. The CPDT (French Democratic Confederation of Labor), PSU (Unified Socialist Party), and RAT [expansion unknown] had to exert all the pressure they could (to say the least) for the principal leaders of the PS to finally sign the petition. Now it's done: together, Mitterrand, Mauroy, Rocard, and even Defferre, have lent their names for a press conference called to present a first review of the petition, and which was held on Wednesday, 23 January, with many specialized and political journalists present. F. Mitterrand, E. Maire, H. Bourchardeau, M. Crepeau, and B. Lalonde, successively presented the position of their organizations, and then answered questions from the floor. A representative of CAN [expansion unknown] intervened in the discussion. A future issue of T.S. HEBDO will present the comments of H. Bourchardeau, who summarized the fundamental points of agreement and disagreement with the other parties involved.

The petition is, as we know, the result of an understanding between the forces opposed to the development of nuclear power, and those who, like the PS, propose a simple slowdown. The text reflecting the majority view of the last socialist convention (receiving 60 percent against 15 percent for a text more opposed to nuclear power, and against 17 percent for the very pro-nuclear CERES (Center for [Socialist] Studies, Research, and Education) proposal), is indeed more than vague about the future of the program: "a careful examination of these two matters has led us to forecast a diversification of sources of energy, and a limitation of nuclear power, which will have to remain a transition source of energy until solar energy becomes a viable alternative. The present estimate is that it will probably be necessary to slightly increase the amount of nuclear power for a few years after the left comes to power."

On the other hand, the text of the petition is more clearly against breeder reactors (moratorium).

The discussions disclosed that the PS program would lead to the construction of some 50 nuclear plants by the year 2000, as compared to about 100 for the government's program (or one half, which is still a considerable number).

The answers to questions asked by reporters clarified two important points:

1) Suspension of the program. The explanatory text joined to the petition stipulates the bases of the agreement:

Suspend the construction of plants beyond CP1 (as long as the democratic debate has not been completed; this added point was demanded by the PS);

Suspend the construction of Superphenix, as well as all industrial breeder reactors, and refuse to accept new nuclear industrial installations (extension of the Hague to commercial ends);

None of the finished reactors will be placed in operation until all the facts have been learned from the Harrisburg experience.

This agreement is clearly important because of the moratorium which it proposes, but it does not hide the divergences between organizations. The first point is essential, and elsewhere in this issue we have published a list of the PWR reactors of the program (the French line of graphite-gas, Bagn 1, Chinon, and St-Laurent has now been abandoned); six are in operation, 16 are in CP1, and eight in CP2, in addition to the 1300 Mw and of course, the breeders. But the fact that a stop to CP1 has been included in the petition means that we accept this first phase of the program. There has been no agreement to refuse it, and each one is therefore free to decide. We might add that after the matter of the cracks, all the organizations agreed to refuse the shipment of Tricastin and Gravelines which are in CP1. The same is true for the last point concerning the lessons from Harrisburg, also essentially with respect to CP1; the conclusions of the American investigating commissions are known today to be very severe in their findings (Kemeny and NCK reports).

2) The referendum. Agreement exists for a nuclear power referendum, but not without conditions. Indeed, everything depends on the organization and duration of the preparation period, the real possibilities of contradictory information, and the content of the referendum question. Regional consultations could be suggested in addition, but with the same reservations as above. The point of the matter is to see who has the initiative: the summit or the base? Thus the interest in popular initiative referendums, which are decided on the basis of a certain number of voter signatures (2 to 5 percent of the electoral body, depending on the size of the precincts).

Reminder: Signatures are counted in terms of organizations (except those gathered jointly). They should be sent to PSU, 9 rue Boromee; in addition, the presence of the party (press table, and so on) should be assured at

discussion meetings; use the brochure "Yes, We Can Do Without Nuclear Power" (0.08 F each). Send useful information to T.S. HEBDO: state of the petition in departments or localities, original initiatives, and so on.

Useful publications: LA GAZETTE NUCLEAIRE, sold at Librairie Syros, 40 F subscription for 10 issues, 2 rue Francois-Villon, 91400 Orsay. Also a CFDT brochure: "Energy, Nuclear Power. Choosing our Future."

11,023  
CSO: 5100

## SYNOPSIS OF OPERATIONAL, PROPOSED NUCLEAR POWERPLANTS

Paris TRIBUNE SOCIALISTE HEBDO in French 3-12 Feb 80 p 2

[Table]

[Text] French program for 900 MW and 1300 MW PWR nuclear power plants, and dates for placement in operation.

Program years	Projects	MW power	Date of placement in operation	Program
1970	Fessenheim I	900	30 Dec 77	
1972	Fessenheim II	900	18 Mar 78	
1971	Bugey II	900	19 Feb 79	
1972	Bugey III	900	13 Feb 79	
1973	Bugey IV	900	8 Mar 79	
1974	Bugey V	900	31 Jul 79	
1974	Tricastin I	900	December 79	CPI
1974	Gravelines I	900	December 79	CPI
1974	Dampierre I	900	December 79	CPI
1974	Tricastin II	900	1st quarter 80	CPI
1974	Gravelines II	900	2nd quarter 80	CPI
1975	Dampierre II	900	3rd quarter 80	CPI
1975	Tricastin III	900	3rd quarter 80	CPI
1975	Gravelines III	900	4th quarter 80	CPI
1976	St Laurent B1	900	4th quarter 80	CPI
1975	Tricastin IV	900	1st quarter 81	CPI
1975	Dampierre III	900	1st quarter 81	CPI
1975	Blayais I	900	2nd quarter 81	CPI
1976	Gravelines IV	900	2nd quarter 81	CPI
1976	St Laurent B2	900	2nd quarter 81	CPI
1976	Dampierre IV	900	3rd quarter 81	CPI
1977	Blayais II	900	4th quarter 81	CPI
1976	Chinon B1	900	4th quarter 81	CPI
1977	Chinon B2	900	1982	CPI
1977	Blayais III	900	1982	CPI
1976	Paluel I	1300	1982	

Program years	Projects	MW power	Date of placement in operation	Program
1977	Blayais IV	900	1982	CP2
1977	Paluel II	1300	1982	
1978	Cruas I	900	1983	CP2
1978	Cruas II	900	1983	CP2
1978	Paluel III	1300	1984	
1979	Cruas III	900	1984	CP2
1979	Cruas IV	900	1984	CP2
1979	St Alban I	1300	1984	
1979	Framanville	1300	1984	

**Useful information:**

LA GAZETTE NUCLEAIRE, sold at Librairie Syros. Subscriptions: 40 F for 10 issues, 2 rue Francois-Villon, 91400, Orsay.

CFDT brochure: "Energy, Nuclear Power. Choosing our Future."

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CSO: 5100

COMMUNIST PARTY ON NATIONAL NUCLEAR ENERGY POLICY PROBLEMS

Paris CAHIERS DU COMMUNISME in French Dec 79 pp 38-45

[Article by Jean-Charles Dubart: "Nuclear Power and the Nation's Future"]

[Excerpts] The production and utilization of nuclear energy have unquestionably become a societal problem. But the political and ideologic burden helps hide its substance. Can a modern country dispense with this source of energy as it can for each of the others? A nation's decline or its future are involved once more.

Nuclear Power, Great Problem of the Present and of the Future

The utilization of nuclear energy for civilian ends is now one of today's and tomorrow's great problems. One more than one occasion, the Communists have stated their position in favor of an ambitious and responsible nuclear power policy, even when this was not the easiest thing to do; recent events make it possible to show its great pertinence.

Our position counters that of the government, which is seeking to increasingly place the French nuclear industry under the influence of large private and multinational interests, to put EDF in a dependent position toward these interests, and to dismantle the AEC.

Our stand is different from the political position of socialist leaders and leaders of the CFDT (French Democratic Confederation of Labor), who demagogically flatter those who are preoccupied with the utilization of nuclear power by orienting them toward the quicksands of a moratorium or a suspension. Giscard d'Estaing and Mitterand, Barre and Rocard, have in fact a common dream, to impose a European energy policy in which our nuclear industry would be tightly tethered to the German-American wagon. And while the paths are different, the goal is the same.

Nuclear energy is an indispensable aspect of an energy policy that meets the needs and aspirations of the French, and it can be a primordial factor in assuring national independence and encouraging the development of the growing production force.

## A Scientific, Technologic, and Industrial Progress

Today's energy policy must be determined by national strengths and capabilities, among which of course, is our country's ability to create a new quality of cooperation and exchange relations.

Nuclear energy fully meets these criteria; it is one of the activities with a future, in which France has the greatest assets and unquestionable capabilities. Its determinant national strengths are manpower, uranium resources, technical competence, and the existence of a powerful public and nationalized energy sector.

However, the extent of this potential and know-how must be immediately specified so as to see the extent to which nuclear energy constitutes a meaningful production force, a carrier for significant scientific, technical, and industrial progress. The industrial construction of nuclear installations, the "nuclear corps", does indeed draw on nuclear science as such; but for 10 percent of the necessary skills and technology, it also draws on metallurgy, concrete technology, chemistry, sealing technology, automation and remote control, instrumentation, computerization, and so on. The need to meet very exacting specifications for materials and equipment directs these technologies toward new qualitative thresholds. A "nuclear" quality can now be specified, just as we specify an "aviation" quality for other technologies (hydraulic controls, weight, and so on).

Employment created by nuclear power plant operations (EDF and AEC research).

Nuclear industry as such	15,000
Nuclear fuel cycle	12,000
Electrical construction	28,000
Mechanical construction	80,000
Building and public works	25,000
	<hr/>
	160,000

It should also be added that nuclear power has resulted in great strides in the prediction, evaluation, and prevention of technical risks in general. It is not possible to overlook that the applications of nuclear technology in France have been in constant confrontation with the choices of those in power and of large capital, both in labor union and in political matters; and the facts that the CGT (General Confederation of Labor) is in the majority and strongly organized in the enterprises involved, and that the French Communist Party (PCF) is deeply and lastingly entrenched in them, all count as highly important facts which have weighed and are now weighing on some qualitative aspects of these applications.

The contributions and revelations of the workers' struggles already provide rich material for a new, democratic approach to the problems created by the impact of new technologies on society.

## True Fighting Arena for Good Nuclear Power

Replaced in their true arena, as a function of the real stakes, confrontations on nuclear power are particularly revealing of the claimed or unacknowledged intentions of the political forces involved.

Contrary to the opinion obligingly being spread, this is in fact not at all a confrontation between "nucleocrats" and "anti-nuclear power." The technical problems that are presented serve to hide the political problems and stakes. Even the so-called technical problems of safety: the European standards of safety, for instance, which the Socialist Yvette Roudy relies on to assess French nuclear power, can become the most effective instrument for blocking the "Frenchification" of the pressurized water design; for a company such as Empain-Schneider, this would be the ideal opportunity to question the gains obtained through the struggles of the workers involved.

We must understand that all the resources of the ideologic war against the concepts of progress, democracy, and national self-determination, are used to attempt to impose the idea, not that the political choices of the government in matters of energy and nuclear energy are bad, but that what is bad are the nuclear plants and the nuclear equipment built by the workers of Framatome and Alsthom, EDF, and AEC. This is a diversionary process which fulfills the wishes aimed at those in power by deflecting the blows aimed at those responsible for the policy of waste and for France's decline, giving them the means to clear themselves, and to justify an authoritarian policy, austerity measures, and public service limitations.

We therefore stand firm in our fight against regressive, deactivating utopias of those who would like to make us believe that France does not need a policy of energy growth, and who want to transform the aspirations for a self-management independence into an organization of the distribution of penury.

We denounce the government's choice, which sacrifices such considerable resources as coal, hydraulic power, and bituminous shale, which debates new sources of energy for a better acceptance of the consensus of austerity and crisis, and which in nuclear power matters would impose a policy of national decline and surrender. As a party we stand alongside the concerned researchers and workers whose struggle is animated by a rare spirit of responsibility toward the quality of their work, so as to build the good nuclear power which our country needs.

That is why we resolutely pronounce ourselves against any moratorium and any suspension in the inception of work on nuclear power plants, and why we are in favor of the construction of breeder reactors and the retreatment of irradiated fuels.

## No to the Moratorium

The Communists are often asked about the moratorium or the suspension. In no way would we support initiatives which ultimately endanger the interests of the workers, the French people as a whole, and France's future. To freeze the sites that are now open, to stop the plants that are now operating, and to cancel orders that have been placed, is to render millions of hours of work worthless, and to jeopardize the electric power supply of the French people for several years, all of this under conditions worse than those of the authoritarian conservation measures taken by those in power; the moratorium also means placing our country in an aggravated position of energy dependence, giving free rein to the multinationals to eventually impose their solutions in energy matters and nuclear plants, and contributing to the prevalence of a Europe-Atlantic point of view on the question of nuclear power production.

It is in any case remarkable that those who preach the moratorium are constantly using the example of the United States. During the moratorium of 1966-1970, already, when the PCF was acting to promote the construction of plants that would use the French design, the opposition was proposing the American example and the "good" design!

The French people must not be fooled, even if the political practices that are being used over there as well emphasize nuclear power to make it easier for American public opinion to forget the crucial problems of the crisis. Today, the United States by themselves, have one half of the installed nuclear power in the world; their multinational companies are making every effort to retain absolute leadership both over designs and fuels; they are determined, even with respect to breeder reactors, to next impose their hold over the imperialist market \*).

## Our Choice, Good Nuclear Power for the French People

The Communists are accountable to the future; the proper choice of nuclear power must be made in France on the basis of our strengths, our know-how, and the aptitudes of the working class and workers, who want to intervene with determination and responsibility in the industrial process of power plant construction.

This orientation toward a responsible and ambitious nuclear power policy is part of a vast overall energy policy which France needs, that is why, for instance, the PCF militates for the construction of coalfueled power plants which would use our resources; some successes have been achieved; following

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\*) For instance, John Deutch, assistant secretary in the Department of Energy, recently declared that the United States will offer a better product than the Super Phenix when they decide to introduce the rapid neutron design. He added that he saw no possibility for developing the French breeder reactor technology on the American market.

the Carling plant in Lorraine, placed under construction this year, and the Le Havre plant which has been planned, two new coalfueled plants have been accepted at Cordemais (Loire-Atlantique). These are first victories; the breach must be widened by imposing the construction of coalfueled plants at l'Aumance (Allier), Gardanne (Bouches-du-Rhone), and Carmaux (Tarn), so as to use the resources of coal basins, and by demanding the modernization of coal plants located in Ile-de-France, at Beauror (Aisne), and Bec, near Saint-Etienne.

We have to be realistic.

The government had of course clearly stated its desire to build nothing but nuclear power plants after 1974, so that by 1985 the production of nuclear power would represent the equivalent of 90 million tons of coal (and 25 percent of France's supply).

But the regional and national fights and battles have since that time imposed several new coalfueled plants, as well as other hydraulic equipment and gas turbines. The government itself admits that the 1985 goal must be reduced to 66 million tons of coal equivalent. And in reality, it will barely reach two-thirds of the initial objective.

Those in power clearly had no intention of proceeding with a Frenchification of American designs, nor to reopen the matter of Westinghouse license agreements in 1982. But after Fessenheim I, modifications were imposed by the workers, to the point where some people were saying that the cracks were the result of the Frenchification. What the whole crack incident revealed following the determined offensive of the CGT and the stand taken by PCF, is the foresight, determination, and capability of the workers, whose concern is to build good nuclear power plants as of today.

The present struggle and victories are against the orientations of those in power, and the development of these efforts, to which the Communists are contributing their strength, makes accessible such new objectives as:

The installation of new democratic security structures both for workers and for the population affected;

Significant progress in the intervention of the personnel into working conditions, and into the technology and industrial installations of nuclear energy;

The abandonment of license agreements that bind Framatome to Westinghouse, and the denunciation of all other forms of agreement that associate Framatome, AEC, or EDF with Westinghouse, notably research agreements, the Frenchification of the light water design, and the development of technical research and development activities,

The outright nationalization of groups involved in the nuclear industry, notably Schneider-Empain and Pechiney-Ugine-Kuhlmann.

These goals could be reached even today, if only the struggle were to reach the magnitude deserved by a matter of such essential importance to our future. The Communists do not postpone until future electoral outcomes that which can be imposed through confrontations on the actual grounds of nuclear power choices; they disavow prophecies of doom and the all-or-nothing policy, which have no hold on any level at which the energy structure of France is being designed for the year 2000, but which on the contrary favor the aims of those who, in power or elsewhere, dream of turning nuclear power into the prototype of integrated European industry, which is their fondest wish.

Yes, nuclear industry workers in France, at EDF, AEC, Framatome, and Novatome, are capable of producing good nuclear power, thereby assuring part of the country's energy supply, and they are doing so with the support of the Communists who subscribe to their struggles and who propose innovative orientations.

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**PROPOSED NUCLEAR POWERPLANT SITES SPARK LOCAL PROTESTS**

Paris LE MONDE in French 2 Feb 80 p 35

[Article by Leo Palacio]

[Text] Plogoff: Large Meeting Next Sunday

On the morning of 31 January, Plogoff (Finistere) looked like the aftermath of a riot. Huge stones taken from boundary walls littered the road where the main barricade had been erected during the night. Tires were still smoldering, while old farm machinery and car shells were lying in the ditch, where they had been pushed by the police bulldozers.

And yet the consensus held that the night had been less rough than expected: practically no wounded, and few direct hits. Did the tear gas grenades shot horizontally by the mobile police have the desired deterrent effect? Not unlikely.

But the local population, which did not seek a confrontation, also knows that the moment of truth will take place Sunday, that on that day, thousands of Bretons will throng to the Feuteun an Aod site, where the future 5200 megawatt nuclear plant is to be built. In the meantime, the vans which the prefecture had installed and named "city hall annexes" -- because the mayors had refused to provide administrative facilities -- and which were protected by police in riot gear, were awaiting their first visitors.

A demonstration was held Thursday afternoon in Plogoff, under conditions of calm and shuttered windows; it involved a gathering of two to three thousand people. The surprise came from Quimper, when 2500 high school students -- public and private schools together -- ended up spontaneously in the streets. They filed by silently all afternoon. One of their many signs said "No to neutrons, yes to sheep," as a reference to the sheep pen that has been erected on the site of the future plant.

## 5200 Megawatts at Pointe du Raz

Only three kilometers from Pointe du Raz, one of the most famous and visited places in the world -- yet already disfigured by a large shopping center and a huge parking area -- is where EDF plans to build, right by the water, four reactors of 1300 megawatts each. The nuclear power plant, located on the south coast of the point in a spot that is presently deserted but very near the village of Plogoff, will require a significant amount of work similar to that undertaken at Flamanville (Manche). The cliff will have to be cut so that a platform, a port, water intakes and outlets, and dikes can be built at the water's edge; these constructions will cover 77 hectares of the sea's public shoreline, while 90 hectares will be used on dry land.

If the project is declared to be in the public interest, the site of the first two reactors should be opened in 1983. It will remain open for five years, and will employ 2000 workers at its peak periods. The anticipated cost is 7 billion francs. Once in operation, around 1988, the two reactors will produce 15 billion kilowatt-hours per year, which amounts to the total electricity consumption anticipated for the Brittany region in 1990. In 1978, this consumption was 6.5 billion kilowatt-hours per year.

The taxes paid by the plant will bring 30 million francs to the Finistere Department and to the neighboring districts.

The environmental effects of the plant will be far from negligible, since it will pump 180,000 liters of water per second, returning it 15 degrees warmer to the sea. It will also release radioactive effluents in the form of gas (41,600 curies per year) and liquids (1862 curies per year). The plant will also produce solid wastes which will be removed to the Hague Center. On the other hand, EDF has tried to avoid inflicting on the village of Plogoff, the outrage of the high voltage lines which would have passed above it on their way from the plant. The lines will be placed underground for the first three kilometers, and will be routed overhead only inland, in a valley.

The Brittany Economic and Social Council said yes to the Plogoff site in September 1978, followed immediately by the Regional Council and by the Finistere General Council. On the other hand, the Brest Municipal Council (coalition of the left) said no, as did most of the districts of Pointe du Raz. In Plogoff's own district, an opposition group which includes almost the entire population, is headed by the mayor himself, Jean-Marie Korloc'h (SP) (Socialist Party). An agricultural land group was created, which covers 150 hectares, and a symbolic sheep pen was built on the actual site last August.

Golfech: Favorable Decision of the Fact-Finding Commission

From our regional correspondent. Toulouse -- On Thursday, 24 January, the fact-finding commission for the Golfech (Tarn-et-Garonne) nuclear power plant issued a decision favoring the construction of four reactors of 1300 megawatts. This commission, formed as part of a public fact-finding inquiry, is chaired by Mr Daudignon, mayor of Beaumont-de-Lomagne (SP).

This position has aroused a strong movement on the part of ecologists and activists of leftist parties in the Midi-Pyrenees region. The Toulouse Ecology Association has expressed its indignation, stating that "the commission issued its decision on the very day on which the collective 'For Another Energy Policy,' which groups the PS, PSU (Unified Socialist Party), CFDT (French Democratic Confederation of Labor), MRG [expansion unknown], and the Friends of the Earth, demanded a meeting and democratic decisions on the major energy options, and a suspension of the current nuclear power program." The Association pointed out that Mr Daudignon belonged to the collective and had declared himself opposed to the plant project. As a result, the ecologists are withdrawing from the Toulouse collective.

By the same token, the Haute-Garonne PSU denounces "the hypocrisy of the Socialist Party, which associated itself with the national petition but opposes the Golfech plant, and does not repudiate the chairman of the fact-finding commission, who is a socialist mayor in the region."

As to those responsible for the Midi-Pyrenees-Ecology policy, they also observe "that the Socialist Party has adopted local, regional, and national positions which are not consistent with the text of the petition; that it did not repudiate the socialist mayor of Beaumont-de-Lomagne; that through the expedient of a socialist chairman of the Midi-Pyrenees Regional Council, it has appointed a study commission with very strong credits to its name and chaired by a pro-nuclear scientist, professor Neel; and that at its recent convention, it has adopted an energy option accepting the government's nuclear program up to 1985."

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PARTY LEADERS SECRETLY AGREE: NO MORE THAN 12 REACTORS

Stockholm DAGENS NYHETER in Swedish 20 Feb 80 p 8

[Article by Sven Svensson]

[Text] The most important nuclear power decision is already a fact. The Swedish nuclear power industry will be liquidated after 12 reactors, at the most. Party leaders have agreed on this in secret meetings and without the Swedish people or the Riksdag having had the possibility of giving their opinion. Also the party congresses have been completely bypassed.

The liquidation of the Swedish nuclear power industry after, at the most, 12 reactors means no more new reactors. Decisions, in a few years, to buy foreign reactors since the Swedish nuclear power industry has officially been declared dead, will be out of the question. American nuclear power reactors are not as safe as the Swedish ones, and Soviet reactors have lower safety requirements than American reactors.

Instead of endorsing or opposing nuclear power, the Swedish people will, in a referendum, have to choose among three different nuclear power alternatives, all of which involve some form of application or some form of liquidation.

The referendum will be of an advisory nature. That is why it will be the government and the Riksdag which will gradually have to interpret the result of the referendum.

The formulation of the three alternatives presented in the referendum is such that the outcome will provide little guidance in the energy question, but the explosive force in terms of party politics will become the bigger.

If a line should win the majority in the referendum, that will simplify the interpretation of the result of the referendum. The division into three lines makes it less likely that this will be the case.

The interpretation will become particularly complicated if the three lines should get approximately one third each of the votes.

The result of the referendum will then have to be weighed against the latest election result. Approximately 33 percent for Line 1 would imply a considerable advance to the Swedish Conservative Party, while similar figures for Line 2 would mean a political setback to the Social Democratic Party and the Liberal Party.

On the other hand, 33 percent for Line 3 will mean an advance for the Center Party and the Left-Wing Communist Party. Still, in this case, it is only a small part of the truth.

Opponents of nuclear power have long maintained that a majority of the Swedish people is against nuclear power, and that the Riksdag does not represent the will of the people.

Line 3 was the first one to formulate its alternative in the referendum and thereby indicated the framework of the other alternatives as well. If Line 3 does not get 50 percent of the vote, it will, against this background, mean a clear defeat.

The people will then have rejected, not only an immediate end to nuclear power, but also the party tactical solution of six reactors in operation and liquidation within 10 years.

#### Concerns Charging of Four Reactors

The party political effects of the referendum must be analyzed on the basis of 1. the immediate decision which the government and the Riksdag may adopt in the energy question, 2. short-term decisions which the government and the Riksdag may adopt, 3. long-term decisions forming the basis for a transition to new energy systems in the nineties and around the year 2000, and which will then replace nuclear power.

The main short-term question of the referendum is concerned with the question whether or not to charge the four completed reactors (Ringhals 3, Forsmark 1, Ringhals 4 and Forsmark 2).

The way the voting papers have been formulated, and the way the money has been distributed among the various lines of the referendum, the situation is clear. If Lines 1 and 2 together get more than half the votes, the four completed reactors will be charged; if Line 3 gets more than 50 percent of the vote, there will be no charging of the four completed reactors.

On this point, there are scarcely any possibilities of compromise, even if the result of the voting should become very even. The outcome of the referendum among the people must be respected even if the margin is narrow.

Different rules apply to the charging of the four reactors if Lines 1 and 2 get the majority. With reference to the legislation governing the regulations, the Liberal government has approved the charging of the two reactors Ringhals 3 and Forsmark 1, but, through separate legislation, the charging has been postponed pending the referendum.

A victory to Lines 1 and 2 means automatic charging for these two reactors.

#### Fälldin Bound by Declaration

In the government declaration it says:

"If the result of the referendum should be in favor of utilizing further reactors, the government will, in questions of new charging permits, have to interpret this outcome as an approval of the application of the regulations which appear from the government decision of 21 June 1979." (The reference concerns the decision made by the Liberal government on charging permits for Ringhals 3 and Forsmark 1.)

Under the government declaration, Fälldin, therefore, has committed himself to approving the charging also of the ninth and tenth reactors.

The implication is that Fälldin must consider the requirements of the regulations to have been met if Lines 1 and 2 get more than 50 percent of the vote. If Fälldin raises difficulties on this point, the result will be a government crisis and/or a statement of no confidence from Palme.

If Line 3 gets more than 50 percent, a special law is required to prevent the charging of the four completed reactors. On this point, the parties have committed themselves to respect the result of the referendum.

Charging of the four completed reactors can, after a victory in opposition hereof, only take place after a new referendum or after a new election in which the charging has been a main issue.

On the other hand, there are no guidelines as to how the liquidation of the present six reactors is to proceed. A liquidation will require lots of measures of intervention on the part of the state, perhaps rationing. It will cause party political disputes and debates in coming election movements which disregard the result of the referendum.

Lines 1 and 2 state that, at the most, 12 reactors must be completed. A victory to these two lines, therefore, involves certain efforts for a continued development of nuclear power. Whether it involves 11 or 12 nuclear power plants is less certain.

So far, a total of slightly more than 21 billion have been spent on the 12 reactors, and if the eleventh and twelfth reactors are stopped after the referendum, the costs will be 28 billion. A completion of the 12-reactor program will cost 36 billion.

The eleventh reactor, Forsmark 3, has been under construction at a slow pace for a long time and is half completed. It is likely that the construction will continue at some pace if Lines 1 and 2 get the majority.

The situation is more uncertain, as far as the twelfth reactor, Oskarshamn 3, is concerned. Private interests dominate the power group of Oskarshamn.

Completion of this reactor requires an economic settlement between the State and the group of owners. Without state guarantees, the private owners will probably want their money returned.

The charging of the eleventh, and possibly the twelfth, reactor will not be decided through the referendum, even if Lines 1 and 2 should get the majority.

The two reactors will not be ready for operation until the end of the decade. The charging, therefore, will depend on how the reliability in operation of nuclear power plants will be evaluated at that time, and what the developments in party politics will be in the general elections. Nuclear power and energy questions will, no doubt, be playing a big role in all elections in the eighties.

The real work will be concerned with shaping the long-term energy policy. Here, the referendum will provide little guidance. The energy policy of the nineties will have to be based on successive decisions, as soon as possible, in the eighties.

#### Possible to Reach Broad Agreement Between 2 and 3

One thing is clear. Despite all the nice words about liquidation of nuclear power, Line 1 of the Conservative Party is primarily a line concerned with the application. Line 1 does not show any concrete measures how the liquidation of nuclear power is to take place, but talks mostly about the fact that Line 2 involves socialization.

In questions on the long-term energy policy, Lines 2 and 3, therefore, have considerably more points in common than Lines 1 and 2. This will have great party political significance as the possibility exists of creating broad agreement between the Social Democrats, the Liberal Party, and the Center Party on the direction of the future energy policy.

In the first place, Lines 2 and 3 ought to have great possibilities of agreeing on measures gradually to take out of operation some of the older nuclear power plants, either for reasons of safety or for reasons of location.

In the second place, Lines 2 and 3 also agree to go in for renewable energy sources, such as solar heat, peat and wind power, to replace power from nuclear power plants and to reduce the dependence on oil. The dividing line is that Line 3 believes that it can be done in 10 years, while Line 2 believes that it will take at least a couple of decades.

In the referendum, the various lines can only indicate the direction of their intentions when it comes to the long-term energy policy. It is impossible to lay down these aims and guidelines for good. The energy policy will have to be tested each year in the light of new experience and on the basis of the economic situation.

Later on, in the general elections, the voters will have to check that the politicians live up to their promises in the referendum regarding efforts toward economic management and new energy systems.

SWEDEN

NUCLEAR SAFETY INSPECTORATE ORDERS TIGHTER MONITORING

Stockholm DAGENS NYHETER in Swedish 14 Feb 80 p 3

[Text] The widespread botched work in connection with mountings in nuclear power plants which was discovered in the fall, will now result in tighter monitoring. The National Swedish Nuclear Power Inspection Board (SKI) will expand the rules and regulations governing mountings and inspections.

At the request of the SKI, Gustaf Edling, consultant, has examined a number of reports on botched work in connection with the mounting of bolts for pipings. His report now forms the basis for the expanded rules and regulations of the SKI.

It was at Ringhals that the most widespread botched work was discovered. But also at Oskarshamn 1 and at Forsmark 1 were defective bolts found. In Ringhals 3 and 4, nearly 6,000 sawed-off bolts were found out of a total of 20,000 examined bolts. In Forsmark 1, approximately 3,000 bolts will be exchanged.

In October of 1978, a large number of defective expansion bolts were discovered in Ringhals 4. At the time, it was decided to undertake an approximately 100 percent examination of 20,000 bolts in Ringhals 3 and 4. At this special examination, 2,584 defective bolts were discovered in Ringhals 3, and 3,300 in Ringhals 4.

The defects at Forsmark 1 did not concern cut-off bolts but too short bolts, insufficient threading, inferior galvanization, etc.

The botched work could have led to serious accidents if it had not been discovered in the renewed checks. The SKI is now examining the rules and regulations governing mountings and checks. Gustaf Edling's review of the reports from the nuclear power plants has now been submitted to the SKI.

### Monitoring

"Far tighter monitoring is needed," he writes. "For the inspection of mounted expansion bolts undertaken by the suppliers themselves does not give satisfactory results."

He suggests that the responsibilities of the suppliers be made clear already when placing orders for pipelines, mountings and inspection. That is why the SKI had to investigate the need for expanded official directives.

"We ourselves have had the same thoughts as those advanced by Gustaf Edling, consultant," Tomas Eckered of the SKI says. "We need more far-reaching directives as to the facts which have to be reported to the SKI."

"We also have to become more active ourselves and not just ascertain facts," Tomas Eckered says.

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CSO: 5100

CIVIL SERVANTS UNION REPORTS ON N-POWER COSTS, JOB EFFECTS

Stockholm DAGENS NYHETER in Swedish 12 Feb 80 p 7

[Text] An expansion of nuclear power guarantees neither maintenance of the present rate of employment nor low electricity costs. A liquidation, on the other hand, need not involve a reduced rate of employment, seen as a whole.

This statement was made by a group of economists and statisticians of the Stockholm district of the National and Local Government Officers' Association in a report which will be presented during a debate on Tuesday night in Stockholm.

Electricity costs will increase, no matter which alternative will prevail in the referendum, the authors write. The difference, however, will not become very big. The electricity price will not become 50 percent more expensive in line 3 than in line 1 and 2. The reason for this is that hydro-electric power still accounts largely for the electricity production--it will thus be possible, also in the future, to keep the average costs at a fairly low level--and that also the costs of nuclear power increase. So far, it has been assumed that nuclear power will not become more expensive, and the fact that variable costs, among other things, have risen nearly fourfold since 1975, has been disregarded.

To the paper industry, cheap energy involves a more rapid transition from chemical to mechanical paper pulp. Without nuclear power, paper mills based on chemical mass will get greater possibilities of survival, the authors state. To the majority of the paper mills, the production is today based on chemical pulp.

Also the other big energy-consuming industry, the iron and steel works, can manage quite well without nuclear power, the authors write. For one thing, there are vast possibilities of economization within that sector,

and, for the other, electric power for process heat can be replaced by other energy sources.

The main conclusion is that employment is not threatened within any entire industrial branch in case of liquidation of nuclear power.

On the other hand, certain enterprises may get problems, the economists believe. This applies to such industries as the ferro-alloy industry and the electro-chemical industry. A total of approximately 3,000 workers are employed within these enterprises. As a counter-measure, the authors propose that the state subsidize the electricity costs of these enterprises.

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CSO: 5100

SWEDEN

LINE-2 BACKERS: N-POWER TO END BY 2010

Stockholm DAGENS NYHETER in Swedish 13 Feb 80 p 6

[Article by Sven Svensson]

[Text] Nuclear power will end completely by 2010. This is being promised by the national committee for Line 2 prior to the referendum on 23 March in a proposal for liquidation of the Swedish nuclear power program. The liquidation plan contains about 40 different items for the replacement of nuclear power by other energy sources.

The Social Democratic Party and the Liberal Party stand behind Line 2 in the referendum. The liquidation plan will be presented at a press conference today, Wednesday, by campaign leaders Rune Molin and Hans Blix.

Line 2 will not present any energy balance. However, the demand for electricity is calculated in 1980 to increase to 91 terrawatts, in 1990 to 125 terrawatts and in 2000 to 127 terrawatts.

Six nuclear power plants are now in operation, four are ready to start operation, and two are in the process of being constructed. In 1980, nuclear power is to account for 23 terrawatts, in 1990 for 58 terrawatts, and in the year 2000 for 40 terrawatts, at the most. By 2010, nuclear power is to end completely.

The production of electricity from nuclear power must be replaced by other forms of energy, at the same time as the dependence on oil must be limited. State, regional and municipal efforts for the application and production of energy must be coordinated organizationally, according to Line 2.

The State has, furthermore, the responsibility for implementing by legislation measures resulting in the greatest possible energy economy, and that the transition to new sources of energy be furthered without any adverse effects on the protection of man and the environment, Line 2 points out.

Line 2 finds that there are great possibilities of introducing new energy sources in the energy system. The uncertainty as to when they can be introduced on a large scale is considerable, however.

In the eighties, forest energy (wood-chips and waste pieces) and peat are best suited to replace the fuel oil in district heating plants and central heating plants. By 1990, these sources of energy ought to be able to replace approximately 3 million tons of oil. That corresponds to 10 percent of the oil consumption today.

In the nineties, Line 2 finds that it will be possible to increase sharply the production of forest waste, peat and wind power. The problems of storing solar heat should also have been solved by then.

Around the turn of the century, it should be possible to start introducing new methods for direct conversion of solar energy to electricity, but only on a small scale. Offshore wind power plants and perhaps converted sea wave energy can also contribute to the energy supply.

In the course of the next 15 years, nuclear energy may also be utilized to reduce the oil consumption, Line 2 says in its plan to end the use of nuclear power. One has to choose methods which do not make it more difficult to introduce other sources of energy.

Direct electric heating systems must be prevented in permanent buildings. Special incentives must be introduced to replace direct electric heating systems in existing buildings.

Conversion of oil furnaces to solid fuel and electric heat which is not direct electric heating systems should be introduced with government subsidies.

#### A Number of Recommendations

Line 2 recommends in a number of different items measures distributed on different periods of time to end the use of nuclear power.

For the period 1980-1985, the following measures, among other things, apply:

Stop after 12 nuclear power reactors. No nuclear heating plants must be built.

The proposal made by the reactor safety committee for improved safety through the introduction, among other things, of filter chambers.

A special safety study will be introduced for each reactor.

A local safety committee will be set up at each nuclear power plant.

The nuclear power industry must be adapted to renewable forms of energy.

The municipalities will be given greater possibilities of introducing effective energy planning.

A special energy economy law will be introduced of the same type as the environmental protection law.

A review will be made of the entire legislation in the energy field to facilitate the introduction of alternative energy sources.

Mapping of the areas for peat-digging.

The planning and building legislation will be adapted to the need to develop alternative forms of heating.

The application of hydro-electric power to replace oil will be stimulated, and the installation of new oil-burning furnaces will be limited.

Electricity rates and energy taxation will be adapted to facilitate the introduction of new energy sources.

A special energy fund will be set up to finance new energy sources.

Development companies for alternative energy sources will be formed.

Waste heat from nuclear power plants will be utilized through district heating networks.

An effective procurement of new energy technology will be facilitated through cooperation between state, municipalities and enterprises.

For the period 1985-90, the following recommendations, among others, are made:

The research and development work provide the basis for evaluations of future prospects for new energy sources and new energy technology.

New energy systems, such as solar heating and wind power, will be introduced.

Expansion of district heating systems will be carried through to utilize domestic energy sources.

The construction in the nineties of new energy plants will be prepared.

For the period 1990-2000, Line 2 expects that new energy sources will contribute increasingly to the supply of energy, making it possible to push back the share of oil.

Combined power and district heating plants, and supplied with domestic fuel.

Rapid development in wind power and solar heating plants.

Toward the end of the period, nuclear power starts being discontinued.

During the last few years of the nineties, electric heat will, to a large extent, be replaced by solar heat and domestic fuel.

For the period 2000-2010, according to Line 2's liquidation plan, the following will apply:

The renewable energy sources will play a dominating role in the energy supply.

The share of oil declines.

The last nuclear power reactors will be taken out of operation.

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CSO: 5100

SWEDEN

NUCLEAR SAFETY INSPECTORATE REPORT: CRACKS IN RINGHALS' BOLTS

Stockholm DAGENS NYHETER in Swedish 14 Feb 80 p 3

[Text] Cracks have been discovered in bolts which fasten the cover of the reactor tank of Ringhals 4. The cracks were not found when the tank was completed at Uddcomb but were discovered in the course of the basic testing at Ringhals last spring.

This was revealed in the report for the last quarter of 1979 which was published by the National Swedish Nuclear Power Inspection Board (SKI) last Wednesday.

So far, defects have been discovered in seven out of a total of 58 bolts. The bolts concerned were sent to the Netherlands for an impartial examination. The Swedish State Power Board and the National Swedish Nuclear Power Inspection Board believe that it is a question of defects in the materials used, as similar cracks have never before been detected.

Consequently, the SKI wants all flanged nuts concerned in all reactors examined completely by way of ultrasonic testing and magnetic powder testing. This means that both the six reactors which are now in operation and the four reactors which have not yet been charged, will be examined, the SKI writes in its quarterly report.

The testing will be performed in 1980 for reactors which have been put into operation, and, as soon as possible, for the rest.

To the four reactors which are ready to commence operation at Forsmark and at Ringhals, it means that they will not be put into operation until the testing has been completed.

It is a question of cracks in the threads of so-called flanged nuts in the reactor tank for Ringhals 4. The cracks are most likely to have arisen in the course of the pressure testing or the high-temperature pilot operation of the reactor. At the production control, they were without defects.

The SKI is critical of the Swedish State Power Board, the owner of Ringhals, which was far too slow in examining the bolts.

#### Before Summer

According to reactor inspector Dick Weibahr of the SKI, the cracks in the bolts were discovered already before the summer of 1979. The supplier of Ringhals 4, the North American Westinghouse, at first did not believe the statements made, but agreed to extensive investigations when one of the suspected bolts was ground down and the cracks were exposed.

Not until the summer was over did the SKI learn what had happened. They then decided to await the results of further investigations, but when these were delayed, the SKI decided to demand that all reactor tank cover bolts in Swedish nuclear power plants be inspected.

This demand was now made public in connection with the publication of the latest quarterly report.

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SWITZERLAND

ZURICH GREAT COUNCIL APPROVES KAISERAUGST NUCLEAR PLANT

Geneva JOURNAL DE GENEVE in French 29 Jan 80 p 3

[Text] After 6 hours of debate the Zurich Great Council decided by 92 votes to 62 in favor of the agreement of general approval for the Kaiseraugst nuclear station. The Great Council, like the Zurich Government, also recommends therefore to the sovereign powers to vote yes on 27 April next.

It may indeed be recalled that on 2 December last, the Zurich residents had assumed the right to take a decision on the construction of nuclear plants by approving, through a compulsory referendum, the position taken by the State Council within the framework of the procedure of federal consultation preceding the agreement by the Federal Council of the general approval for nuclear power stations, waste reprocessing stations or radioactive waste dumping sites. On the other hand, the Great Council took a decision Monday on the final formulation of the subject. In 3 months, the residents of Zurich will give or withhold their approval of the following sentence: It is recommended that the Federal authorities approve the construction of the Kaiseraugst nuclear station to assure the supply of electricity."

There were many representatives to debate the question last Monday already when the debate lasted 2 and 1/2 hours and yesterday when 3 and 1/2 hours were needed. The socialists, like the Evangelist representatives opposed the agreement for general approval for the construction of Kaiseraugst, whereas the majority of the members of the other parties came out in favor of granting this permit. While a week ago, the discussions had been devoted to fundamental questions concerning the nuclear field, yesterday, Monday, the representatives debated on whether or not there was need for this power station.

The Government's Point of View

It was stated that Switzerland was threatened by an energy impasse starting in 1985, whereas the substitute energies will be available at earliest by the end of the century, nuclear energy appearing in this light as a necessary transition phase. The president of the government, Mr Kunzi stated, for his part, that economic growth, and thus, employment security had to be guaranteed and he was not prepared to shoulder the responsibility for an energy crisis.

Among the representatives in favor of granting general permission for Kaiseraugst, the financial consequences of a rejection of the station were finally put forward: 850,000,000 francs presently invested, of which only 250,000,000 could be recovered by sales, and the rest, that is 600,000,000 francs would be lost.

#### And the Opponents' Viewpoint

On the part of the opponents, it was stated that the evaluation of the needs for electricity, taken as basis for granting the permission, corresponded to energy consumption during the years when it was cheap. These evaluations did not take into account the fact that the price factor might slow down consumption. On the other hand, it would be throwing dust in the eyes of the population to claim that it would be possible to reduce our dependence on outside sources for oil supplies by building Kaiseraugst. In conclusion, according to the Zurich socialists, we must stop falling back on nonrenewable sources of energy and support energy economies on a legal basis.

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SWITZERLAND

FEDERAL COUNCIL DECREES INSURANCE FOR NUCLEAR INSTALLATIONS

Geneva JOURNAL DE GENEVE in French 23 Jan 80 p 11

[Article by Jean-Pierre Gattoni]

[Text] The operator of a nuclear plant has civil liability in case of serious accident. To compensate the third party (parties) injured, the limit of this liability had first been fixed in Switzerland at 40 million francs, then raised to 200 million francs in 1977. In a message published yesterday and submitted to the Chambers, the Federal Council has decided in favor of unlimited liability for the operator and provides that this liability will now be covered up to 1 billion francs. Note that the difference of 800 million will be borne by the Confederation. This is the new--and most important--element of the bill adopted by the government.

It is proper to specify that this bill on civil liability in the nuclear field, a very specific one, is of a type that would complete the other sections of the Swiss nuclear legislation. It had been submitted to extensive consultation (parties, cantons, very different organizations) in January last year. After considering the comments of all the parties concerned, the Federal Council, put the finishing touches on it.

The "main elements" of this legislation submitted to the Chambers, are as follows:

--Just as in the past (ordinance of 1976), the operator of a nuclear plant must take out a nuclear RC (civil liability) insurance assuring up to 200 million francs coverage.

--The amount from 200 million to 1 billion francs will be assumed by the Confederation.

--The Confederation will guarantee, also up to 1 billion, the coverage of the damages for which no reparation is possible.

--In cases of "great catastrophes" concerning for example a large section of the population, the Federal Assembly could release credits exceeding 1 billion.

--The operator of a nuclear power station, with civil liability, may act with a right to recourse, against a person causing intentionally the damage and against the party causing it through serious negligence.

--The Federal Council proposes to increase from 2 to 3 years the relative prescribed time for damage claims, and replace the present absolute prescription period by a lapse period of 30 years. The lapse means the cancellation of previously accomplished procedural acts when a certain period has elapsed without any act being accomplished.

#### Cost of Electricity

The experts who drew up the law, estimated that the amount of 200 million francs for a private civil insurance is the minimum to be borne by the operator of a nuclear plant. They even want the coverage to be the highest possible. In this connection it should be added that the bill provides for the passage of nuclear materials through Switzerland, that the amount of insurance for each transport should be at least 50 million francs.

As regards the coverage of 800 million francs assumed by the Confederation, a specification is needed: it will be offered against the payment of premia by the operator of a station. Now a problem arises: What would be the amount of these premia? It may be very high. The rise from 200 million to 1 billion of the RC insurance will cause a 100 percent increase in the premia. Well, in 1977, the premia had doubled because the amount of compulsory insurance had risen from 40 to 200 million francs. It should also be noted that if we take into account delayed damages (suffered 30 years after the possible nuclear incident) these premia would be increased by 200 percent. The costs for the operator would then be heavy, and it may be feared that there would be repercussions in the cost of electricity.

What else does the law provide with regard to the penalties in case of the violation of the compulsory insurance? The penalty of imprisonment and a fine amounting to at least double the annual private insurance premium for anyone violating deliberately the obligation of insurance and constituting reserves. If the "guilty party" is convicted of negligence, it would also mean imprisonment or a fine which may amount to 20,000 francs. The same penalty has been imposed for anyone violating the law intentionally or through negligence.

#### Strict Conditions

It is indisputable that these conditions for nuclear liability are much more rigorous than those of the neighboring countries to Switzerland, most of whom ratified the Conventions of Paris and Brussels which settled this problem. Switzerland, which had signed the Paris Convention, had never ratified it, nor that of Brussels. The latter (supplement to the Paris Convention of 29 July 1960) fixed the limit of 520 million for the RC insurance. By providing for an unlimited liability, for the moment there would be no point in ratifying

these two conventions. It would derive more drawbacks than advantages by doing so. In any case, to cite an example among others, if a Swiss victim were to claim damages from a foreign country, or conversely, a system of reciprocity would make it possible to eliminate the unequalities of the treatment.

Finally it may be noted that, according to this law, the term nuclear plants refers not only to those used to generate nuclear energy, but also those in which "nuclear substances are stored or reprocessed."

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END

**SELECTIVE LIST OF JPRS SERIAL REPORTS**

**WORLDWIDE SERIAL REPORTS**

WORLDWIDE REPORT: Environmental Quality  
WORLDWIDE REPORT: Epidemiology  
WORLDWIDE REPORT: Law of the Sea  
WORLDWIDE REPORT: Nuclear Development and Proliferation  
WORLDWIDE REPORT: Telecommunications Policy, Research and Development

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**DATE FILMED**

MARCH 19, 1980

**Jones**